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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,373	03/01/2004	Mark S. Chee	AFFYP005D	8971
26541	7590	08/09/2006	EXAMINER	
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			SKOWRONEK, KARLHEINZ R	
			ART UNIT	PAPER NUMBER

1631

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,373

Applicant(s)

CHEE ET AL.

Examiner

Karlheinz R. Skowronek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 44-66 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 44-66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>(4 sheets)</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

Claims 1-44 are cancelled.

Claims 45-66 are pending and being examined.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged.

Information Disclosure Statement

The information disclosure statements (IDS) (4 sheets) submitted on 1 March 2004 and 5 June 2006 have been received. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements have been considered by the examiner.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45 and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Claim 45 recites the phrase "to call bases" in the body of the claim. It is indefinite as to what applicant intends the phrase "to call bases" to mean. Each nucleotide base has an art accepted name which it is called, namely Adenine (A), Thymine (T), Guanine (G), Cytosine (C), and Uracil (U).

Claim Rejections - 35 USC § 103

2. Claims 45-55 and 56-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Staden (Automation of the computer handling of gel reading data produced by the shotgun method of DNA sequencing, Nucleic Acids Research, vol. 10(15), p. 4731-4751, 1982), in view of Khrapko et al. (An oligonucleotide hybridization approach to DNA sequencing, FEBS, Vol. 256(1,2), p. 118-122, October 1989) or in view of Drmanac et al. (DNA Sequence Determination by Hybridization: A Strategy for Efficient Large-Scale Sequencing, Science, Vol. 260, p. 1649-1652, 11 June 1993).

Claims 45-55 and 56-66 are directed to a computer implemented method (claims 45-55) and a corresponding computer program product (claim 56-66) that displays sequences of bases by displaying at least one reference sequence, displaying at least one sample sequence, both sample and reference sequence are aligned by corresponding bases, evaluates the hybridization between the sample sequence and

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probe to sequence the sample, having a user select a plurality of sequences, compare the user selected sequences and displaying the base positions in the selected sequence (claim 46 and 57) that differ from the sample sequence and the reference sequence. The method further comprises the steps of displaying a common symbol (claim 47 and 58), like a number (claim 48 and 59), next to the selected sequence. The sample or reference sequence represents nucleic acid, either RNA or DNA (claim 49 and 60), composed of the bases; A, C, G, and T(U) (claim 50 and 61). At least one reference sequence is a wild type sequence (claim 51 and 62), which is displayed first (claim 52 and 63) and has an associated label (claim 53 and 64), C (claim 54 and 65). The program displays a name associated with each the reference and sample sequence (claim 55 and 66).

Staden teaches a computer implemented method and a computer program product for the manipulation and storage of DNA sequencing data. The program compares a sample sequence obtained from calling bases from a sequencing gel reading ("gel readings", 2. SCREENV, p4737) to a reference sequence ("vector sequence", p. 4737) and displays alignment of sample and reference. Staden also teaches a program that compares user selected sequences ("contig", p.4732) to a sample sequence and reference, in which a common symbol, a number or letter, is associated with the sequences ("DISPLAY", p. 4738-4739). The program displays monomer sequences of DNA, as the characters A, G, C, or T for the bases that compose nucleic acid polymers. The sequences can be displayed on a display device. The program displays difference between the reference, sample and user selected

sequences (Figure 3, p. 4749). Staden teaches the storage of the computer readable program product ("in constant use", p.4748 and "written in fortran", p. 4751).

Staden does not teach calling bases of nucleic acid by the evaluation of hybridization between nucleic acid and nucleic acid probes.

The Khrapko et al. and Drmanac et al. references are cited as examples of other methods known in the art for obtaining sequencing information.

Khrapko et al. teach calling bases of a nucleic acid by the evaluation of hybridization between the nucleic acid and nucleic acid probes. Khrapko et al teach the immobilization of nucleic acid probes to a glass plate (see Materials and methods, p. 119) to which a labeled sample is contacted. The hybridized sample is detected and the sequence of the sample is determined by the sequence of the probes to which the sample bound (figure 1, p 119).

Drmanac et al. teach a method of calling bases to sequence nucleic acids by evaluating hybridization between the nucleic acid and nucleic acid probes. In the method of Drmanac et al. nucleic acid probes are bound to a solid support, to which a sample is contacted. Sample sequence is determined by the sequence of nucleic acid probes to which the sample hybridized (see fig 2a, p. 1650).

It would be obvious to one of ordinary skill in the art that the way of calling bases (identifying sequences) itself is not critical for the method of Staden. Thus, one would have been motivated to utilize any method of calling bases available in the art, such as the method of Khrapko et al. or Drmanac et al. Additionally, one of ordinary skill in the art would have been motivated to use either the method of Khrapko et al. or Drmanac et

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al. because either allow the generation of large amounts of sequencing data that can then be a source for displaying and analyzing sequences according to the method of Staden. One would have a reasonable expectation that using either the method of Khrapko et al. or Drmanac et al. as a source of sequencing data would be at least as successful as using gel-based sequence information of Staden because the source of sequence information is not critical in the method of displaying and analyzing sequences.

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karlheinz R. Skowronek whose telephone number is (571) 272-9047. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (571) 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MICHAEL BORIN, PH.D
PRIMARY EXAMINER

